

# REMOVING COASTAL STORMWATER POLLUTION

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The NERRS Science Collaborative is committed to sharing information about the projects we fund in the most effective way we can. Updates about this project will be communicated through [nerrs.noaa.gov](http://nerrs.noaa.gov), webinars, conferences, and meetings. If you would like to stay in touch with this project, contact our program coordinator, Cindy Tufts: [cindy.tufts@unh.edu](mailto:cindy.tufts@unh.edu)

For information about the applied science, contact Mike Mallins, research professor, biology and marine biology, University of North Carolina Wilmington, at 910.962.2358 or [mallinm@uncw.edu](mailto:mallinm@uncw.edu)

For information about the collaborative aspect of this project, contact Whitney Jenkins, coastal training program coordinator, North Carolina NERR, at 252.838.0882, or [whitney.jenkins@ncdenr.gov](mailto:whitney.jenkins@ncdenr.gov)

## What's happening?

A team led by the North Carolina National Estuarine Research Reserve (NCNERR), the North Carolina Coastal Federation, and the University of North Carolina Wilmington (UNCW) has received \$349,518 to reduce the polluted stormwater runoff that enters the state's Masonboro Sound. The team is using a Collaborative Learning framework to engage communities, nonprofits, and local and state organizations in developing and implementing a plan to move forward on this issue. The plan will include demonstrating the effectiveness of large and small scale stormwater retention techniques and sharing the results of these demonstrations with appropriate audiences.

## Why this project?

The number one threat to water quality along the North Carolina coast, stormwater pollution contributes to beach closures, impacts tourism, and places ecologically and environmentally valuable fish and shellfish at risk. Rapid urbanization and population growth have increased the volume of stormwater flowing into coastal waterways, and managing this increase is complicated by the increasingly extreme and unpredictable rainfall patterns caused by climate fluctuations.

Masonboro Sound has experienced an increase in stormwater runoff since it was designated as Outstanding Resource Waters in 1989, a trend that has significantly degraded its water quality and the health of its aquatic habitats.



The stormwater outfall at Wrightsville Beach, North Carolina, is typical of sites that will be designated for retrofitting to reduce polluted stormwater draining directly into waters used for fishing and swimming.

To address this issue, the North Carolina Coastal Federation organized a Collaborative Team of stakeholders in 2006 who included the NCNERR, North Carolina Department of the Environment and Natural Resources (NCDENR), UNCW, the City of Wilmington, the Town of Wrightsville Beach, other local and state government organizations, and land developers and contractors.

The Team has completed several successful stormwater protection and restoration efforts within the Bradley and Hewletts Creek watersheds. This project will allow the team to continue and expand its efforts to protect and restore the waters of the Masonboro Sound within the watersheds of Wilmington and Wrightsville Beach.

The project will work with the Collaborative Team to improve and demonstrate effective stormwater management techniques for use by the range of issue stakeholders, including developers, realtors, homeowners, state agency staff, and local governments.

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## About the funder

The NERRS Science Collaborative puts Reserve-based science to work for coastal communities coping with the impacts of land use change, stormwater, non-point source pollution, and habitat degradation all in the context of a changing climate. Our threefold approach to connecting science to decision making includes:

- Using a competitive RFP, we fund projects that incorporate collaboration and applied science to address coastal management problems identified as priorities for Reserves and their communities.
- Transfer of knowledge: Through our transfer program, the science we fund is shared throughout the NERRS and the communities they serve.
- Graduate education: Through TIDES (Training for the Integration of Decision Making and Ecosystem Science), a non-thesis Master's degree program hosted by the University of New Hampshire, we train the next generation of professionals to link science to coastal decision making.

The program operates by a cooperative agreement between the University of New Hampshire (UNH) and the National Oceanic and Atmospheric Administration.

Learn more at....

[nerrs.noaa.gov/  
ScienceCollaborative.aspx](http://nerrs.noaa.gov/ScienceCollaborative.aspx)



Collaborators tour the waters of Masonboro Sound in the North Carolina NERR as part of a watershed restoration plan.

## How will this project work?

The project team's first priority is to create and implement a plan for effective collaboration among local, state, and federal regulators, as well as stakeholders from academia, development professionals, and homeowners.

Masonboro's existing Collaborative Team will review this plan and help formalize the Collaborative Learning methods they will use to connect stakeholders to the science, stormwater strategies, demonstration, and information dissemination that are included in this project.

With this collaborative plan as a guide, the project will refine their approach to demonstrating, monitoring and sharing different approaches to reducing stormwater volume. These activities will include working with stakeholders to:

- Determine the appropriate types and scales of stormwater reduction retrofits that will be demonstrated as part of this project;
- Site and install large bioretention areas on public property for community outreach;
- Monitor retrofit sites and test their effectiveness to ensure they are cost effective and relevant to water quality protection agencies.

The project team will also work with homeowners in a Wilmington neighborhood that has been designated for small scale project implementation. They will help homeowners select and implement stormwater reduction projects, such as rerouting rain gutters and installing infiltration devices like sand filters and rain gardens.

The team will assess the pollution reduction gained from retrofits in Wrightsville Beach and the Wilmington neighborhood, and will document and evaluate the results for performance and cost-effectiveness.

They will share project results online and at community meetings, state and national conferences, online web pages, and the City of Wilmington's GIS Atlas, a database of stormwater best management practices which tracks city-wide watershed restoration efforts.



The project team reviews a stormwater management treatment structure.